

PRESENTATION: ORAL PRESENTATION (FAST PRESENTATION) - BEST CLINICAL RESEARCH STUDY

<https://doi.org/10.29289/259453942025V36S11080>

1080 – Efficacy of photobiomodulation in the prevention and reduction of the severity of radiodermatitis in people with breast cancer undergoing adjuvant radiotherapy: preliminary results

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Introduction: Adjuvant radiotherapy is indicated for the local control of breast cancer, with radiodermatitis (RD) being its main adverse effect, with an incidence of up to 98%. Photobiomodulation (PBM), using red light and near-infrared, has emerged as a promising non-pharmacological strategy for the prevention and management of RD.

Objective: To evaluate the efficacy of PBM in the prevention and reduction of the severity of RD in people with breast cancer undergoing adjuvant radiotherapy.

Methods: A double-blind, randomized, superiority clinical trial was conducted with people with breast cancer undergoing adjuvant radiotherapy at the National Cancer Institute. Participants were randomized into an intervention group (IG: active PBM, 630/850 nm, 3 J) or a control group (CG: sham PBM), with PBM applied three times a week during radiotherapy. RD was evaluated using the Radiation Therapy Oncology Group/European Organization for Research and Treatment of Cancer (RTOG/EORTC) system. The expected sample size was n=148 (IG=74 and CG=74). Analyses followed the intention-to-treat principle, using the chi-square test (Statistical Package for the Social Sciences software, version 30.0).

Results: Recruitment began in July 2025. To date, 164 patients were screened, 103 were included, and 84 completed the intervention. During radiotherapy, the overall incidence of RD was 88.1% (CG=100% and IG=76.7%; p=0.001). After 20 days of follow-up, the overall incidence of RD was 97.6%. The occurrence of grade ≥ 2 RD was higher in the CG (26.8%) than in the IG (4.9%) (p=0.007), showing a significant reduction in the most severe forms in the IG.

Conclusion: To date, PBM has significantly reduced the incidence and severity of RD and may be an effective and easily implemented strategy for preventing this skin toxicity in breast cancer patients undergoing adjuvant radiotherapy. Its incorporation into clinical practice may improve the quality of care and tolerance of cancer treatment.

Ethics: Research Ethics Committee Approval (CAAE 83380324.4.0000.5274; Opinion No. 7.228.376).

Registry: Clinical Trials: NCT06990165.

Funding: Anke Bergmann received a Productivity Scholarship from the Brazilian National Council for Scientific and Technological Development (CNPq), Level 2.

Keywords: breast cancer; radiotherapy; radiodermatitis; physical therapy modalities; low-level light therapy.